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INSTRUCTION MANUAL

Model ADO-102

Serial EC 3497-3

ēlin DIVISION — CALIFORNIA INSTRUMENTS CORPORATION

3511 MIDWAY DRIVE / SAN DIEGO, CALIFORNIA 92110

MP MASTER

MA28054

INSTRUCTION MANUAL

Model ADO-102

Serial EC 3497-3

ONE YEAR WARRANTY

CALIFORNIA INSTRUMENTS CORPORATION warrants each instrument manufactured by them to be free from defects in material and workmanship for a period of one year from the date of shipment to the original purchaser. Excepted from this warranty are tubes, fuses, and batteries which carry the warranty of their original manufacturer where applicable. CALIFORNIA INSTRUMENTS CORPORATION will service, replace, or adjust any defective part or parts, free of charge, when the instrument is returned to the Company, freight prepaid, and when examination reveals that the fault has not occurred because of misuse or abnormal conditions of operation. Equipment repaired beyond the effective date of warranty or when abnormal usage has occurred will be charged at applicable rates. CALICO will submit an estimate for such charges before commencing repair if so requested.

PROCEDURE FOR SERVICE

If a fault develops, notify CALICO or its local representative, giving full details of the difficulty, and including the model number and serial number. On receipt of this information, service data or shipping instructions will be furnished. If shipment is indicated, forward the instrument, freight prepaid, to the factory or to the authorized repair station indicated in the instructions. If requested, an estimate of the charges will be made before the work begins, provided the instrument is not covered by the warranty.

DAMAGE IN TRANSIT

The instrument should be tested as soon as it is received. If it fails to operate properly, or is damaged in any way, a claim should be filed with the carrier. A full report of the damage should be obtained by the claim agent, and this report should be forwarded to us. CALICO will advise the disposition to be made of the equipment and arrange for repair or replacement. Please include model number and serial number when referring to the instrument.

SPARE PARTS ORDERING INFORMATION

In order to provide our customers with prompt service on component parts procurement for ēlin equipment, please follow the instructions below.

When ordering component parts, DELETE THE LETTER PREFIX that may appear in the ēlin part number, EXCEPT in the case of TRANSFORMER orders.

Ordering information must include the ēlin part number and a description of the part.

Example: ēlin part number 73721, potentiometer, 25 ohms, 2 watt.

If possible, include the manufacturer's name and part number as well as the model number and serial number of the instrument.

Example: ēlin part number 73721, potentiometer, 25 ohms, 2 watt, Clarostat 43C2, for Model RK-102, serial number 0036.

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SPECIFICATIONS

MODEL ADO-102

FREQUENCY RANGE:	10 CPS TO 100 KC IN FOUR DECADE RANGES
CALIBRATION ACCURACY:	± 1% @ 25°C WITH THE FINE FREQUENCY VERNIER CENTERED (CAN BE ADJUSTED TO 0% BY FINE FREQUENCY VERNIER)
FREQUENCY STABILITY:	± 0.5%, 15 TO 45°C, ALL CONDITIONS OF LINE & LOAD*
FREQUENCY RESPONSE:	LESS THAN ± 0.25 DB OVER MOST OF THE RANGE, RISING TO ± 1 DB AT THE EXTREMES (REFERENCE - 1KC)
OUTPUT VOLTAGE:	0 - 50V RMS IN FOUR DECADE RANGES
OUTPUT POWER:	2VA @ 50V OUTPUT **
LOAD REGULATION:	LESS THAN 0.25% AT FULL OUTPUT VOLTAGE
TOTAL HARMONIC DISTORTION:	LESS THAN 0.1% AT FULL LOAD OVER MOST OF THE RANGE, RISING TO 0.1% AT 100 CPS
HUM, NOISE AND JITTER:	LESS THAN - 66 DB OF FULL OUTPUT VOLTAGE

* LINE: 105 TO 125V

** UNIT IS STABLE WITH PURE REACTIVE LOAD, EITHER LEAD OR LAG.

A86172
ELIN DIV. OF IEEC

1. INTRODUCTION

The new ADO-102 utilizes the latest engineering developments integrated with established techniques, to provide the ultimate in an audio signal generator.

This instrument combines simplicity of operation with a new and sophisticated approach to the generation of AC signals. The utilization of Elin's unique solid-state regulator in a time-honored Wien Bridge oscillator circuit provides an ultra stable, low distortion AC signal which in turn drives an amplifier capable of delivering more than 2VA output.

The amplifier adds little or no distortion to the extremely pure output of the oscillator.

These features, combined with a simplicity of operation due to direct readout, lend themselves to an almost infinite number of applications throughout the electronic industry.

1.1 UNPACKING AND MECHANICAL INSPECTION

Inspect instrument for shipping damage as soon as it is unpacked. Visually inspect the instrument for broken knobs, connectors or any other signs of physical damage. Rotate controls and switches for smoothness of operation. Binding or jamming indicates defective mechanical operation. If a control is found that does not turn freely, do not force it for such action may cause serious damage. Upon satisfactory visual inspection, check the electrical performance of the instrument. If instrument is defective, see the warranty page i.

1.2 [illegible]

The [illegible] (IEEE) recommends that the instrument panel and its [illegible] be grounded for safety of operation. All Elin instruments are equipped with a three-conductor power cord which when plugged into an appropriate receptacle grounds the instrument. The ground pin on the power cord three-prong connector is the offset round pin. When operating the instrument from a two-contact outlet, use a three-prong to two-prong adapter and connect the ground tail on the adapter to ground.

0 WIEN BRIDGE OSCILLATOR ELIN ASSY. 96026

The oscillator section of the ADO-102 is a capacitance-resistance tuned Wien Bridge Circuit. Precision metal film resistors and ultra-stable polystyrene capacitors are used in the tuning circuits to insure stable operation.

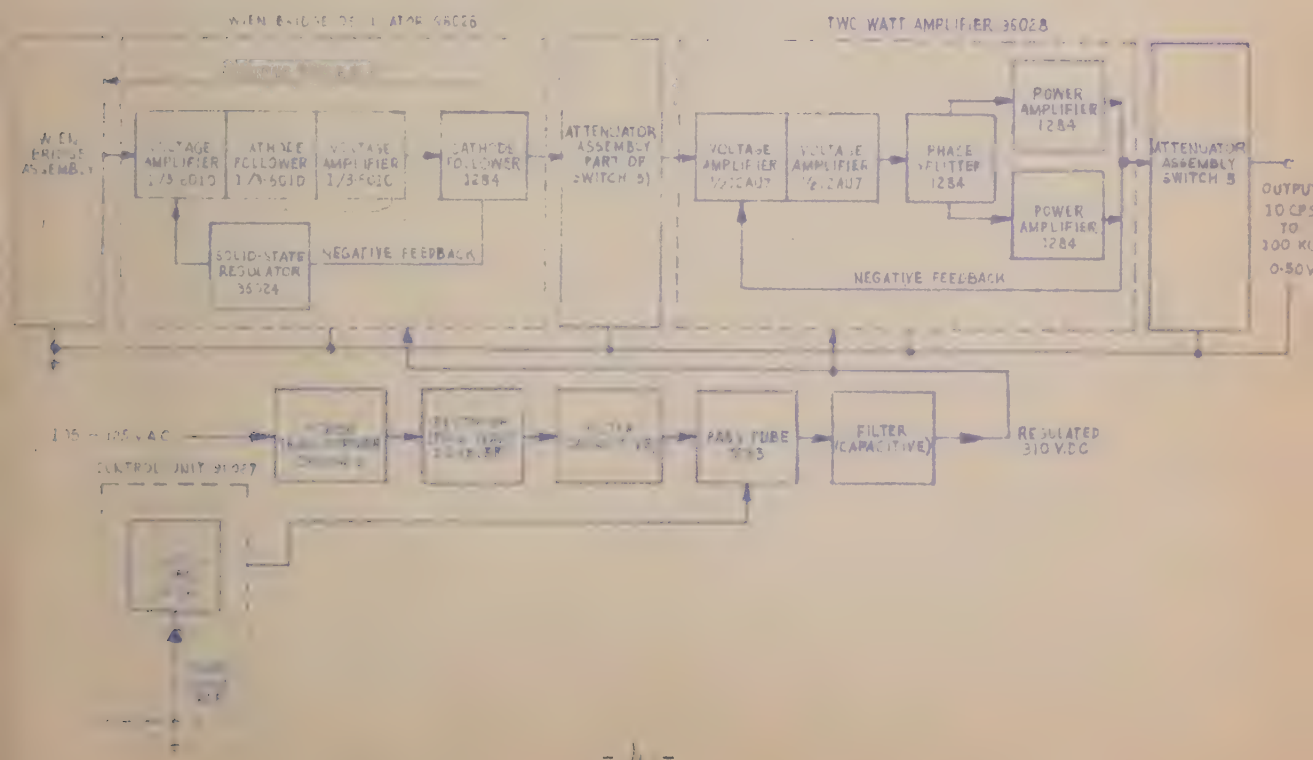
Referring to the block diagram, below, a "compactron" 6D10 and a 12B4 make up the tube complement of the oscillator. The "Solid State Regulator", Elin Part No. 96024, is used to keep the oscillator voltage constant at approximately thirty volts. This regulator serves the same function as a lamp without the inherent mechanical instability associated with lamp stabilization.

1 TWO-WATT AMPLIFIER ELIN ASSY. 96028

The amplifier section of the ADO-102 consists of a 12AU7 voltage amplifier, 12B4 phase splitter and a pair of 12B4's connected as a push-pull cathode follower. This configuration, in conjunction with a large amount of inverse voltage feedback, creates an amplifier capable of more than two-watts output with the addition of very little total harmonic distortion.

2 POWER SUPPLY

The power supply section of the ADO-102 consists of a full-wave voltage doubler DC supply and an electronic regulator. The electronic regulator is made up of a 7233 pass-tube and a zener diode referenced control unit, Elin Assy. 96027. Use of a regulated B + voltage minimizes the effects of line variations on the instrument.



[illegible]

[illegible]

.1 [illegible]ntenance on the AD[illegible]-1[illegible]2 should be very limited due [illegible] conservative rating of components and use of the IRR[illegible] [illegible] dissipating tube shields; however, should failure [illegible]r, a systematic approach to the problem can be [illegible]. The trouble shooting information presented [illegible] this section is for the use of personnel thoroughly [illegible]rsed in trouble shooting procedures and the circuit [illegible]ry given in Secti[illegible].

[illegible] fuse located on the front panel should be checked.

[illegible]ernating current supplied to the power transformer [illegible]uld be measured to insure that the input voltage is [illegible]hin the range of 1[illegible] to 12[illegible]VRMS, [illegible] to [illegible] cps.

[illegible]e tubes should be checked by direct substitution.

[illegible]. Voltage measurements should be made to determi[illegible] all voltages are correct. The [illegible] [illegible]arked on the schematic. [illegible] tages to vary ± 2[illegible] from the designated va[illegible]. [illegible]surements should be made with a vacuum tu[illegible].

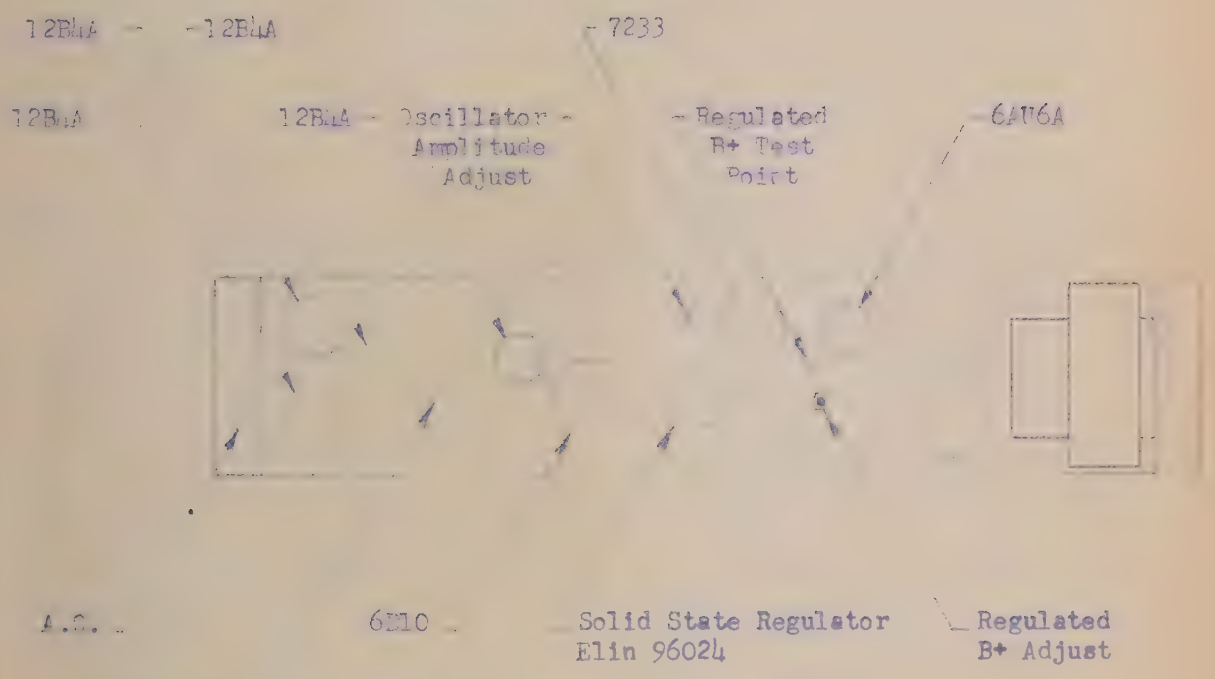
[illegible]dard signal tracing procedures can be used [illegible] [illegible]trument. Use a scope with a high impedance probe t[illegible] [illegible]ent signal loading.

[illegible]ction may be measured with an instrument which [illegible]tly indicates percentage of total harmonic dis[illegible]ion, such as a Hewlett-Packard Model [illegible].

.1 [illegible]TION

[illegible] approximately one hour warm-up before checking [illegible]cy calibration. The fine frequency vernier should [illegible]tered since its range is ± 2% of the set [illegible]cy. There are no adjustments since the component [illegible]eters more than insure accurate calibration.

TUBE AND ADJUSTMENT
LOCATION DRAWING



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135 W MAGNOLIA BLVD, BURBANK, CALIFORNIA

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ITEM	REFERENCE DES	QTY	ELIN PART NO	DESCRIPTION	MFG PART NO	MFG OR CODE NO	STK	P O NO	UNIT PRICE	TOTAL
1		Ref	A86172	Spec Sheet	A86172	Elin 12897				
2		1	D11132	Panel, Front	D11132	Elin 12897				
3		1	D25014	Chassis	D25014	Elin 12897				
4		2	C67082	Plate, Chassis, Side	C67082	Elin 12897				
5		1	D67086	Plate, Switch Mtg.	D67086	Elin 12897				
6		1	B67085	Plate, Chassis, Rear	B67085	Elin 12897				
7		2	B34027	Cover, Top & Bottom	B34027	Elin 12897				
8		5	A42005	Fastener, Hub	A42005	Elin 12897				
9		3	B37004	Dial (0-10)	B37004	Elin 12897				
10		1	B37005	Dial (0-00)	B37005	Elin 12897				
11		1	B37006	Dial (50-Off)	B37006	Elin 12897				
12		1	B16051	Bracket, Connector Mtg.	B16051	Elin 12897				

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135 W. MAGNOLIA BLVD., BURBANK, CALIFORNIA

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ITEM	REFERENCE DES.	QTY	ELIN PART NO.	DESCRIPTION	MFG PART NO.	MFG OR CODE NO.	STK	P O NO	UNIT PRICE	TOTAL
13		1	C96026	Osc. Wien Bridge	C96026	Elin 12897				
14		1	C96028	Amplifier, 2 Watt	C96028	Elin 12897				
15		1	C96027-1	Control Unit D.C.	C96027-1	Elin 12897				
16										
17										
18		1	C96048	Switch, Attenuator	C96048	Elin 12897				
19		1	C96047	Switch, Range	C96047	Elin 12897				
20		1	B96049	Switch, 1st Decade	B96049	Elin 12897				
21		1	B96050	Switch, 2nd Decade	B96050	Elin 12897				
22		1	B96051	Switch, 3rd Decade	B96051	Elin 12897				
23										
24										
25	V1	1	7233	Tube, Electron	7233	Gen. Elec. 85599				
26										
27										
28	CR1A, CR1B	1	38500	Rectifier, Silicon 600 PIV 750 ma	VB600	Mallory 37942				
29										
30										
31	T1	1	C92504-2	Transformer, Power	C92504-2	Elin 12897				
32										
33										

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135 W MAGNOLIA BLVD, BURBANK, CALIFORNIA

ITEM	REFERENCE DES	QTY	ELN PART NO	DESCRIPTION	MFG PART NO	MFG OR CODE NO.	STK	P O NO	UNIT PRICE	TOTAL
34	R1, R2	2	7302 473-5	Resistor, Composition 47k, 2W, ±5%	HB-4735	Allen Bradley 01121				
35	R3	1	73410-352	Resistor, Wire Wound 3.5K, 10W, ±10%	4836A	Ohmite 44655				
36										
37										
38	C1, C3, C4	3	21041	Capacitor, Electrolytic 260uf @ 300V	SP020-7666B	Mallory 37942				
39	C2A, C2B	1	21046	Capacitor, Elect. 50V Dual, 35mfd@400V&100mfd	FP 229	Mallory 37942				
40										
41										
42	F1	1	45001	Fuse, Slo-Blo 1 amp	313001	Little Fuse 75915				
43	XF1	1	45500	Fuse Holder	342004	Little Fuse 75915				
44	J1	1	29021-1	Connector	UG 657/U	Cannon 71468				
45	P1	1	29521	Connector	UG 88/U	Cannon 71468				
46	DS1, 2, 3	3	54008	Assy. Pilot Lamp 12 V White	13F3-6397	Eldema 03797				
47	W1	1	32003	Cord, Line	183SJT	Electro Cord				
48	J2	1	90000	Binding Post, Red	DF31RC	Superior Elect 58474				
49	J3	1	90001	Binding Post, Black	DF31BC	Superior Elect. 58474				
50		4	91020	Terminal Lug	RB14-10	Thomas & Betts 59730				
51		2	50004	Wafer, Cap. Mtg.	BP6	Mallory 37942				
52		1	27001	Bushing, Strain Relief	SR-6P-1	Heyman 28520				
53		1	91021	Terminal Strip 3 Lug + Grd.	4-1118	Alcon				
54		1	91022	Terminal Strip 2 Lug + Grd.	4-1059	Alcon				

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135 W MAGNOLIA BLVD, BURBANK, CALIFORNIA

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ITEM	REFERENCE DES	QTY	ELIN PART NO	DESCRIPTION	MFG PART NO	MFG OR CODE NO.	STK.	P O. NO	UNIT PRICE	TOTAL
55	TB 4	1	91023	Terminal Strip 1 Lug	4-1007	Alcon				
56		2	27048	Clamp, Cable 3/16 dia.	832	H.H. Smith 83330				
57		1	81014	Socket, 9 pin min.	952LL-7	Alcon				
58		1	80044	Shield Base	950	Alcon				
59		1	80042	Dissipator, Tube	TRT6-6025	I.E.R.C. 98978				
60		2	49033	Handles	FCA-8	Vemaline				
61		3	52002	Knob	RB900	Rogan 86797				
62		2	52003	Knob, Dual, Small Knob, Red w/White Line Large Knob, Black 1/4", 1/8" shaft	RB999-700	Rogan 86797				
63		3	87003	Spring, Pilot Light	111	Western Spring				
64		A/R	20004	Cable, Coax.	RG-59/u	F. T. & R.				
65		4	61028	Tinnerman Nut	C8032-832	Tinnerman Prod.				

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BILL OF MATERIALS

ēlin division

INTERNATIONAL ELECTRONIC RESEARCH CORP.
135 W. MAGNOLIA BLVD., BURBANK, CALIFORNIA

TITLE: OSCILLATOR WIEN BRIDGE

COMPILED BY: I.O.P. DATE: 11-27-4

COGNIZANT ENGINEER

PROJECT/JOB NO

SCHEMATIC: C96026 G

SYM.	DESCRIPTION	COMMENTS	APPROVED MFR. & MFR. DESIGNATION	QTY.	PART NO	INSP CODE	STK	P.O. NO	UNIT PRICE	TOTAL
	TUBES									
V-1	ELECTRON		GE	1	6D10					
V-2	"		"	1	12B4A					
	RESISTORS									
R-12	1.5 K 1/2W 10%	CARBON COMP.	ALLEN-BRADLEY	1	7300.5-152-10					
R-11	4.7 K " "	"	"	1	7300.5-472-10					
R-8	82 K " "	"	"	1	7300.5-823-10					
R-1,15	270 K " "	"	"	2	7300.5-274-10					
R-9	1.5 M " "	"	"	1	7300.5-155-10					
R-10	2.2 M " "	"	"	1	7300.5-225-10					
R-14	3.3 M " "	"	"	1	7300.5-335-10					
R-7	27 K 1W "	"	"	1	7301-273-10					
R-13	24 K 2W "	"	"	1	7302-243-10					
R-3	2.37 K 1/2W 1%	DEP. CARBON	I.I. TYPE CD 1/2MR	1	7310.5-2371-1					
R-6	3.48 K " "	"	"	1	7310.5-3481-1					
R-2	6.19 K " "	"	"	1	7310.5-6191-1					

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APPROVED BY	ēlin division — INTERNATIONAL ELECTRONIC RESEACH CORP. 135 W MAGNOLIA BLVD, BURBANK, CALIFORNIA	COMPILED BY DATE I.O.P. 11-27-62	PROJECT CODE NO.
STOCK RELEASE DATE	TITLE OSCILLATOR WIEN BRIDGE	COUNTERPART ENGINEER	SCHEMATIC C96026
COMPLETION DATE			

SYM	DESCRIPTION	COMMENTS	APPROVED MFR. & MFR DESIGNATION	QTY.	PART NO.	INSP. CODE	STK	P.O. NO.	UNIT PRICE	TOTAL
R-5	RESISTORS CONTINUED 2.5 K 1/2W	POT	AB RV6LAYSA252A	1	73747					
	CAPACITORS									
C-1	40 UF @ 200V	ELECTROLYTIC	MALLORY TC58	1	21063					
C-4	.47 UF "	MYLAR	ELECTRON D2474	1	2222-474-20A					
C-6	30 PF @ 500V 5%		ELMENCO DM15300J	1	2235-300-5					
C-2	.01 UF @ 400V 10%	MYLAR .01 X 400	AJAX TPW	1	2224-103-10A					
C-3	680 PF @ 500V 5%	TC 3.3% -30° +85°	ERIE 801-000-Y5D-680J	1	2285-681-5A					
C-5	5 PF " 10%		ELMENCO DM-15-050 K	1	2235-50-10					
	MISCELLANEOUS									
	NUT, HEX. RADIO	#3 NICK. PLATE		6	61025					
	PLATE, OSCILLATOR		APD	1	867089					
	SCREW, BINDER HEAD	#3-48 X 3/16 NICK. PLATE		6	78057					
XVR1, XV2	SOCKET, 9-PIN MIN.	MICA FILLED WITH GR. LUGS & C. SAD.	ALCON 925LL-7	2	81014					
XV1	SOCKET, COMPACTRON		" 371LL	1	81017					
	TERMINAL STRIP		" 4-01772	1	91018					
	LOCKWASHER, INT. TOOTH	#3 CAD. PLATE		6	94005					

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STOCK RELEASE DATE	TITLE	COGNIZANT ENGINEER	SCHEMATIC
COMPLETION DATE	OSCILLATOR WIEN BRIDGE		C96026 G

SYM	DESCRIPTION	COMMENTS	APPROVED MFR. & MFR DESIGNATION	QTY.	PART NO.	INSP CODE	STK	P.O. NO	UNIT PRICE	TOTAL
	MISCELLANEOUS CONT'D.									
VR-1	REGULATOR, SOLID STATE		APC	1	C96024					
	WIRE #22 BROWN BUNCH TINNED	105° C 2-5/8"		1						
	WIRE #22 BROWN BUNCH TINNED	" 2-1/8"		1						
	WIRE #22 RED BUNCH TINNED	" 3"		1						
	WIRE #22 YELLOW BUNCH TINNED	" 2-1/2"		1						
	WIRE #22 SOLID TINNED	5"		1						
	SPAGHETTI, SILICON GLASS	1"		1						
	SPAGHETTI, SILICON GLASS	1/2"		1						
NOTE:	STRIP ALL WIRE 1/4"	EACH END.								

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INTERNATIONAL ELECTRONIC RESEARCH CORP
135 W MAGNOLIA BLVD, BURBANK, CALIFORNIA

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ITEM	REFERENCE DES	QTY	ELIN PART NO	DESCRIPTION	MFG PART NO	MFG OR CODE NO	STK	P O NO	UNIT PRICE	TOTAL
1		1	B67088	PLATE, CHASSIS	B67088	IERC				
2										
3	C1	1	2224-473-10A	CAPACITOR, MYLAR .047 uf @ 400v. 10%	.047x400± 10% TPW	AJAX				
4										
5	R1	1	7310.5-6813-1	RESISTOR, DEP.CARBON 681K, ½W. 1%	Type CD ½ MR	TEXAS INSTR.				
6	R5	1	7310.5-2213-1	RESISTOR, DEP.CARBON 221K, ½W. 1%	Type CD ½ MR	TEXAS INSTR.				
7	R2, R3	2	7301-223-10	RESISTOR, CARB.COMP. 22K, 1W, 10%	CB-2231	ALLEN BRADLEY				
8	R7	1	7300.5-684-10	RESISTOR, CARB.COMP. 680K, ½W. 10%	EB-6841	ALLEN BRADLEY				
9	R6	1	73731	RESISTOR, VARIABLE, 250K w/mtg.head & lock nut	RV6LAYSA250LB	ALLEN BRADLEY				
10										
11	Z1	1	38026	DIODE, ZENER	1D100A	DIODES INC.				
12										
13	V1	1	6AU6A	TUBE, ELECTRON	6AU6A	R.C.A.				
14										
15		1	80015	SOCKET, 7 PIN MICA FILLED with GRD.LUGS, CENTER SADDLE	52911-61	ALCON				
16		1	80038	SHIELD BASE, 7 PIN	550	ALCON				
17										
18		1	51003	TIP JACK, RED	105-602	JOHNSON				
19										
20		1	90016	TERMINAL STRIP 4 LUG, MIN.	4-01769	ALCON				
21		1	80040	DISSIPATOR, TUBE	TR5-5020	IERC				

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135 W MAGNOLIA BLVD., BURBANK, CALIFORNIA

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ITEM	REFERENCE DES	QTY	ELIN PART NO	DESCRIPTION	MFG PART NO	MFG OR CODE NO	STK	P O NO	UNIT PRICE	TOTAL
22		3	78057	Screw Binder H'D 3-48 x 3/16 lg. Nic.Pl.						
23		3	94005	Lockwasher, Int.Tooth #3 CAD.Pl.						
24		3	61025	Hex. Nut, Radio #3-48 Nic.Pl.						
25										
26				Wire #22 AWG. Red 105°C Bunch Tinned 2" lg.						
27				Strip 1/4" each end.						
28										
29				Wire #22 AWG, solid tinned 1½ lg.						

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INTERNATIONAL ELECTRONIC RESEARCH CORP.
135 W. MAGNOLIA BLVD., BURBANK, CALIFORNIA

COMPILED BY: N. PAIK DATE 4-23-62

COGNIZANT ENGINEER

CUSTOMER

TITLE ASSY. 2W AMPLIFIER

SPECS

PROJECT/JOB NO.

SCHEMATIC C96028 E

SYM.	DESCRIPTION	COMMENTS	APPROVED MFR. & MFR. DESIGNATION	QTY	PART NO	STOCK	P.O. NO.	UNIT PRICE	TOTAL
	TUBES								
V-2,3,4	12B4A		GE	3	12B4A				
V-1	12AU7A		"	1	12AU7A				
	RESISTORS								
R-9-10	1.5K 1/2W 5%	CARB. COMP.	ALLEN-BRADLEY	2	7300.5-152-5				
R-13	4.7K " "	"	"	1	7300.5-472-5				
R-7,11	1M " 10%	"	"	2	7300.5-105-10				
R-3,4	33K 1W "	"	"	2	7301-333-10				
R-14	1K 2W 5%	"	"	1	7302-102-5				
R-5	24K " 10%	"	"	1	7302-243-10				
R-1	56.2K 1/2W 1%	DEP. CARB.	T.I. TYPE CD1/2MR	1	7310.5-5622-1				
R-2	100K " "	"	"	1	7310.5-104-1				
	CAPACITORS								
C-4	2200 PF ± 10% @ 400V	MYLAR	AJAX TYPE PPW	1	2224-222-10A				
C-6	.01 UF " "	"	"	1	2224-103-10A				
C-5	.47 UF ± 20% "	"	ELPAC ZD-4A474	1	2224-474-20A				
C-3	2 UF " "	"	ELECTRON D4-205	1	2224-205-20A				

FORM A100

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APPROVED BY
STOCK RELEASE DATE:
COMPLETION DATE:

BILL OF MATERIALS

ēlin division — INTERNATIONAL ELECTRONIC RESEARCH CORP. 135 W. MAGNOLIA BLVD., BURBANK, CALIFORNIA

ASSEMBLY: 2W AMPLIFIER

PROJECT/JOB NO.:

COMPILED BY: N. PAIK DATE 4-23-63 | CONSULTANT ENGINEER: N. PAIK | CUSTOMER: | SPECS: | SCHEMATIC: C96028 E

SYM.	DESCRIPTION	COMMENTS	APPROVED MFR. & MFR. DESIGNATION	QTY	PART NO	STOCK	P.O. NO.	UNIT PRICE	TOTAL
C-7,8	CAPACITORS CONTINUED 220 PF 5% @ 500V	DURA MICA	ELMENCO DM-15-221J	2	2235-221-5				
C-1,2	2 PF 20% "	"	" CM-15-020K	2	2235-020-20				
	TUBE COMPONENTS SHIELD		ISRC TRT6-0025B	3	80042				
	SHIELD		" TRT6-5020B	1	80043				
	SOCKET, 9-PIN	MICA FILLED W/ GND LUGS - CENT. SADDLE	ALCON 925LL-7	4	81014				
	BASE, SHIELD		ALCON 95C	4	80044				
	MISCELLANEOUS PLATE, CHASSIS		APE	1	867090				
	TERMINAL STRIP	3-LUG MIN.	ALCON 4-01773	1	91017				
	TERMINAL STRIP	1-LUG MIN.	" 4-01772	1	91018				

FORM A-CC

BILL OF MATERIALS

PRODUCTION RELEASE
APPROVED BY
STOCK RELEASE DATE
COMPLETION DATE

ēlin division — INTERNATIONAL ELECTRONIC RESEARCH CORP. 135 W. MAGNOLIA BLVD., BURBANK, CALIFORNIA

TITLE: ASSY. Amplifier 2W

PROJECT/JOB NO.:

COMPILED BY: N. Paik — DATE: 4-23-62

COGNIZANT ENGINEER: N. Paik

CUSTOMER:

SPECS: C96028E

SCHEMATIC: C96028E

SYM.	DESCRIPTION	COMMENTS	APPROVED MFR. & MFR. DESIGNATION	QTY.	PART NO.	STOCK	P.O. NO.	UNIT PRICE	TOTAL
	Screw, Binder head	#3-48 X 3/16 N.P.		8	78057				
	Lockwasher, Ext. tooth	#3 NICK. PLATE		8	94015				
	Hex nuts, Radio	#3-48 N.P.		8	61025				
	Wire #22 Blue 105C	Bunch tinned 3"		1	Strip ¼" each end				
	Wire #22 Blue 105C	Bunch tinned 1-¼"		1	"				
	Wire #22 Brown 105C	" 2½"		4	"				
	Wire #22 Brown 105C	" 3"		1	"				
	Wire #22 Brown 105C	" 1-3/4"		1	"				
	Wire #22 Red 105C	" 4-¼"		1	"				

FORM A-00

BY

APP

IERC **elin INSTRUMENTS**
INTERNATIONAL ELECTRONIC RESEARCH CORP
135 W. MAGNOLIA BLVD., BURBANK, CALIFORNIA

STATUS
PROD REL. STK REL
APP. COMPL

ITEM	REFERENCE DES	QTY	ELIN PART NO	DESCRIPTION	MFG PART NO	MFG OR CODE NO	STK	P O NO	UNIT PRICE	TOTAL
1	S5	1	89518B	Switch, Rotary	218720 J2C	Oak 76854				
2										
3										
4	R8	1	7310.5-2490-1	Resistor, Dep. Carbon 249ohm 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
5	R6	1	7310.5 24.90-1	Resistor, Dep. Carbon 24.9ohm 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
6	R7	1	73690	Resistor, Wire Wound 2.75ohm 2 W, ±1%	AS2	IRC 75042				
7	R5	1	7312-2491-1	Resistor, Dep. Carbon 2.49K, 2W, ±1%	Type CR 2R	Texas Inst. 01295				
8	R4	1	7300.5-223-10	Resistor, Composition 22K, 1/2W, ±10%	EB 2231	Allen Bradley 01121				
9	R10, 11	2	7302-243-5	Resistor, Composition 24K, 2 W, ±5%	HB-2435	Allen Bradley 01121				
10										
11										
12	C1	1	21063	Capacitor, Electrolytic 40uf @ 250V	TC 58	Mallory 76149				

BY _____

APP _____

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INTERNATIONAL ELECTRONIC RESEARCH CORP.

145 W. MAGNOLIA BLVD., BURBANK, CALIFORNIA

STATUS

PROD. REL. _____ STK. REL. _____

APP. _____ COMPL. _____

ITEM	REFERENCE DES.	QTY.	ELIN PART NO.	DESCRIPTION	MFG. PART NO.	MFG. OR CODE NO.	STK.	P.O. NO.	UNIT PRICE	TOTAL
1	S4	1	89517B	Switch, Rotary	222839J3	Oak 76854				
2										
3										
4	C1A, C2A	2	2252-5283-0.5A	Cap. Polystyrene .528ufd±1/2% 200V	PW5283F2AT	Southern Electric				
5	C1B, C2B	2	2252-533-0.5A	Cap. Polystyrene .053ufd ±1/2% 200V	2PJ533D	Arco 84171				
6	C1C, C2C	2	2252-532-0.5B	Cap. Polystyrene .0053ufd ±1/2% 200V	2PJ532D	Arco 84171				
7	C1D, C2D	2	2252-501-1A	Cap. Polystyrene .0005ufd±1/2% 200V	2PJ501D	Arco 84171				
8	C1E	1	2235-330-5	Cap. Sil. Mica 33pf ±5% 500V	DM10-330J	Elmenco 02799				
9										
10										
11	R3	1	7320.5-29261-0.5	Resistor, Metal Film 29.26K±1/2%, 1/2W	WL70 T3A	WardLeonard 63473				

BY

APP

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elin INSTRUMENTS
INTERNATIONAL ELECTRONIC RESEARCH CORP
135 W MAGNOLIA BLVD, BURBANK, CALIFORNIA

STATUS
PROC REL — STK REL
APP — COMPL

ITEM	REFERENCE DES	QTY	ELIN PART NO	DESCRIPTION	MFG. PART NO	MFG OR CODE NO	STK	P O NO	UNIT PRICE	TOTAL
1	S1	1	89519B	Switch, Rotary	22838-J3C	Oak 76854				
2										
3										
4	R6A-1, R2A-1	2	7320.5-1482-0.5	Resistor, Metal Film 14.8K 1/2W, 1/2%	Type WL70T3A	Ward Leonard 63743				
5	R6A-2, R2A-2	2	7320.5 9751-0.5	Resistor, Metal Film 9.75K 1/2W, 1/2%	Type WL70T3A	Ward Leonard 63743				
6	R6A-3, R2A-3	2	7320.5-7381-0.5	Resistor, Metal Film 7.38K 1/2W, 1/2%	Type WL70T3A	Ward Leonard 63743				
7	R2A-4 R6A-4, -5	3	7320.5-303-0.5	Resistor, Metal Film 30K 1/2W 1/2%	Type WL70T3A	Ward Leonard 63743				
8	R6A-6	1	7300.5 824-10	Resistor, Carbon Comp. 820K, 1/2W, ±10%	EB-824-10	Allen Bradley 01121				
9	R6A-7	1	7300.5-105-10	Resistor, Carbon Comp. 1M, 1/2W, ±10%	EB-105-10	Allen Bradley 01121				
10	R6A-8	1	7300.5-275-10	Resistor, Carbon 2.7M, 1/2W, ±10%	EB-275-10	Allen Bradley 01121				
11	R6A-9	1	7300.5-155-10	Resistor, Carbon 1.5M 1/2W, ±10%	EB-155-10	Allen Bradley 01121				
12										
13	C-R2A-3	1	2235-150-5	Capacitor, Sil. Mica 15pf ±5%, 50 V	DM10-150J	Elmenco 02799				
14	C-R2A-2	1	2235-200-5	Capacitor, Sil. Mica 20pf ±5% 500V	DM10-200J	Elmenco 02799				
15	C-R2A-4	1	2235-100-5	Capacitor, Sil Mica 10pf ±5%, 500V	DM10-100J	Elmenco 02799				

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INTERNATIONAL ELECTRONIC RESEARCH CORP

135 W MAGNOLIA BLVD, BURBANK, CALIFORNIA

STATUS

PROC. REC. STK. REC.

APP. COMPL.

ITEM	REFERENCE DES.	QTY	ELIN PART NO	DESCRIPTION	MFG PART NO	MFG OR CODE NO	STK	P O NO	UNIT PRICE	TOTAL
1	S2	1	89520A	Switch, Rotary	218721 J2C	Oak 76854				
2										
3										
4	R6B-1 R2B-1	2	7310.5-3013-1	Resistor, Carbon Dep. 301K, 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
5	R6B-2 R2B-2	2	7310.5 1473-1	Resistor, Carbon Dep. 147K 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
6	R6B-3 R2B-3	2	7310.5-9762-1	Resistor, Carbon Dep. 97.6K, 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
7	R6B-4 R2B-4	2	7310.5 7322-1	Resistor, Carbon Dep. 73.2K, 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
8										
9										
10	C-R2B-4 C-R2B-3	2	2235-20-20	Capacitor, Sil. Mica 2pf ±20%	DM10-020	Elmenco 02799				

B: [illegible]

APP

IERC **ēlin** INSTRUMENTS
INTERNATIONAL ELECTRONIC RESEARCH CORP
135 W MAGNOLIA BLVD, BURBANK, CALIFORNIA

STATUS
PROD. REL. STK. REL.
APP COMPL.

ITEM	REFERENCE DES	QTY	ELIN PART NO	DESCRIPTION	MFG PART NO	MFG OR CODE NO	STK	P O NO	UNIT PRICE	TOTAL
1	S3	1	89520A	Switch, Rotary	218721 J2C	Oak 76854				
2										
3										
4	R6C-4, R2C-4	2	7310.5 754-1	Resistor, Carbon Dep. 750K, 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
5	R6C-3, R2C-3	2	7310.5-105-1	Resistor, Carbon Dep. 1M, 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
6	R6C-2, R2C-2	2	7310.5-155-1	Resistor, Carbon Dep. 1.5M, 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
7	R6C-1, R2C-1	2	7310.5-305-1	Resistor, Carbon Dep. 3M, 1/2W, ±1%	Type CD1/2MR	Texas Inst. 01295				
8										
9										
10	C3	1	2235-50-10	Capacitor, Sil. Mica 5pf ±10%	DM10-050K	Elmenco 02799				
11	C-R2C-3 C-R2C-4	2	2235-20-20	Capacitor, Sil. Mica 2pf, ±20%	DM10-020	Elmenco 02799				

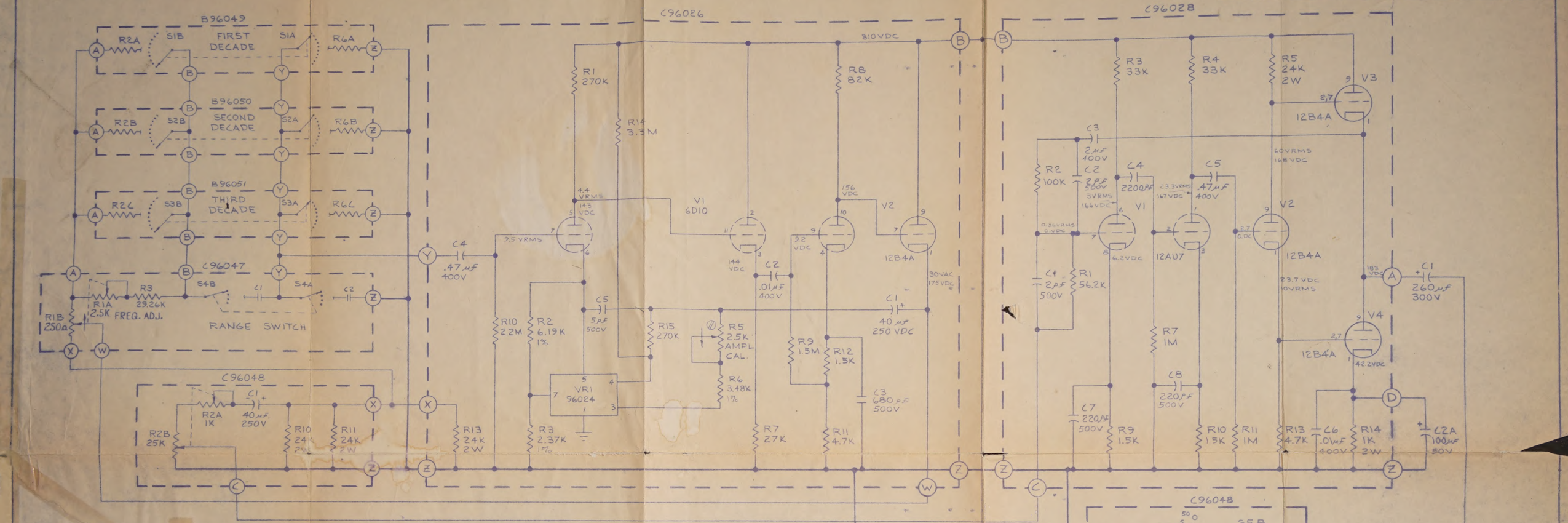
STATUS	BILL OF MATERIALS	MODEL NO	PAGE 1 OF 1
PRODUCTION RELEASE	ēlin division — INTERNATIONAL ELECTRONIC RESEARCH CORP. 135 W. MAGNOLIA BLVD., BURBANK, CALIFORNIA	COMPILED BY: DATE M.W. 4-23-62	PROJECT/JOB NO
APPROVED BY			
STOCK RELEASE DATE	TITLE: REGULATOR SOLID STATE ASSEMBLY	COGNIZANT ENGINEER	SCHEMATIC C96024B
COMPLETION DATE			

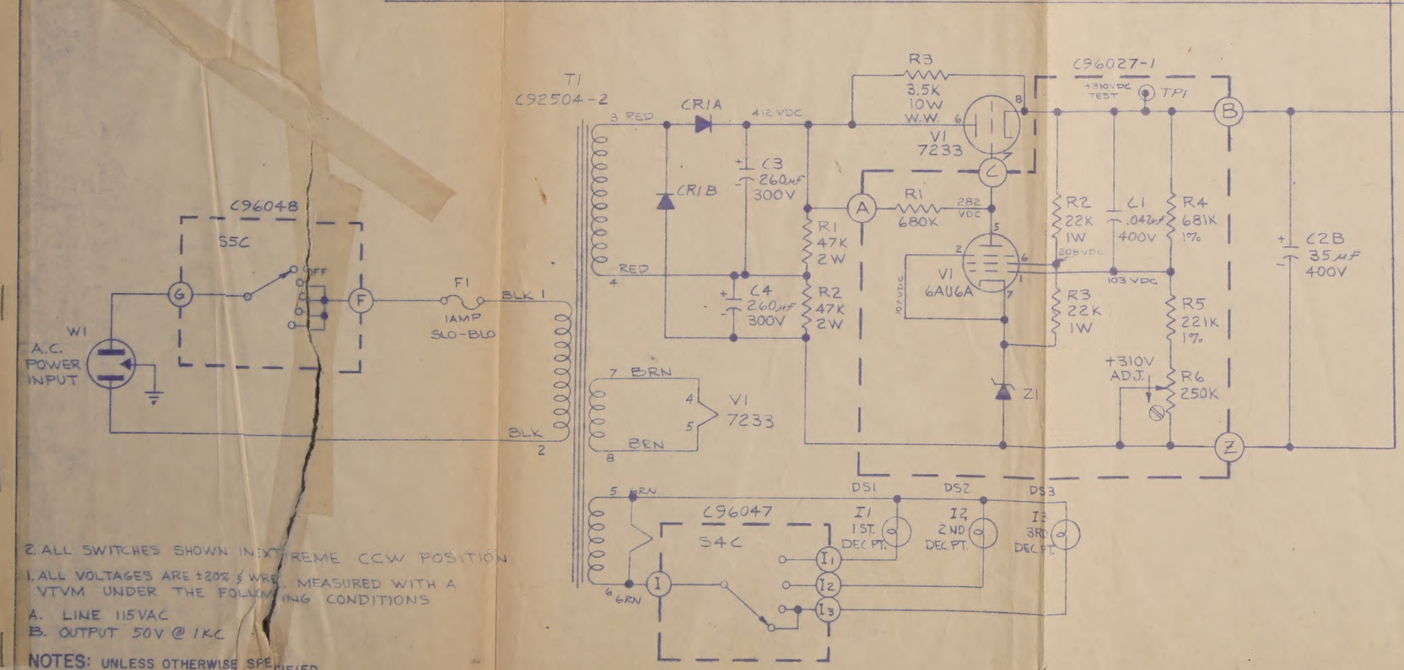
SYM	DESCRIPTION	COMMENTS	APPROVED MFR & MFR DESIGNATION	QTY	PART NO	INSP CODE	STK	P.O. NO	UNIT PRICE	TOTAL
	HEADER, 9-PIN		APD	1	A29023A					
	CASE	FINISH: ELECTRO-LESS TIN	REPATH SE16	1	24013					
	RESISTANCE WIRE	37 MANGANIN DOUBLE SILK COVERED 12"								
R-1	RESISTOR, COMP.	100K 1/2W 10%	ALLEN-BRADLEY	1	7300.5-104-10					
RT-2	THERMISTOR, BEAD		VECO 4589	1	74017					
RT-1	" DISK		" 3509	1	74018					
RV-1	THYRITE		GE. 839940166	1	74019					

elin division of INTERNATIONAL ELECTRONIC RESEARCH CORP. claims proprietary and/or patent rights in the material disclosed hereon. This drawing is issued in confidence for engineering information only and may not be reproduced or used to manufacture anything shown hereon without direct written permission from elin division of INTERNATIONAL ELECTRONIC RESEARCH CORP. to the user.

REVISION

SYM	DESCRIPTION	DATE	APPROVED
E	REDRAWN, CIRCUIT UNCHANGED	7/19/65	
F	ADDED VALUES TO R1A & R1B	2-22-71	





2. ALL SWITCHES SHOWN IN EXTREME CCW POSITION
1. ALL VOLTAGES ARE ±20% & WERE MEASURED WITH A VTVM UNDER THE FOLLOWING CONDITIONS
A. LINE 115VAC
B. OUTPUT 50V @ 1KC

NOTES: UNLESS OTHERWISE SPECIFIED

PART NO.	PART NAME	STOCK	MATERIAL	SPEC	REF DES	CODE IDENT	ZONE	ITEM NO.
			DESCRIPTION					

LIST OF MATERIALS

REQD PER NOTED ASSY

DASH NO.	USED ON	QTY

APPLICABLE SPECIFICATION

THE ABOVE SPECS FORM A PART OF THIS DRAWING

UNLESS OTHERWISE SPECIFIED
1. RESISTORS ARE 1/2W ±10%
2. CAPACITORS ARE IN MICROFARADS

MATERIAL

FINISH

DO NOT SCALE DRAWING

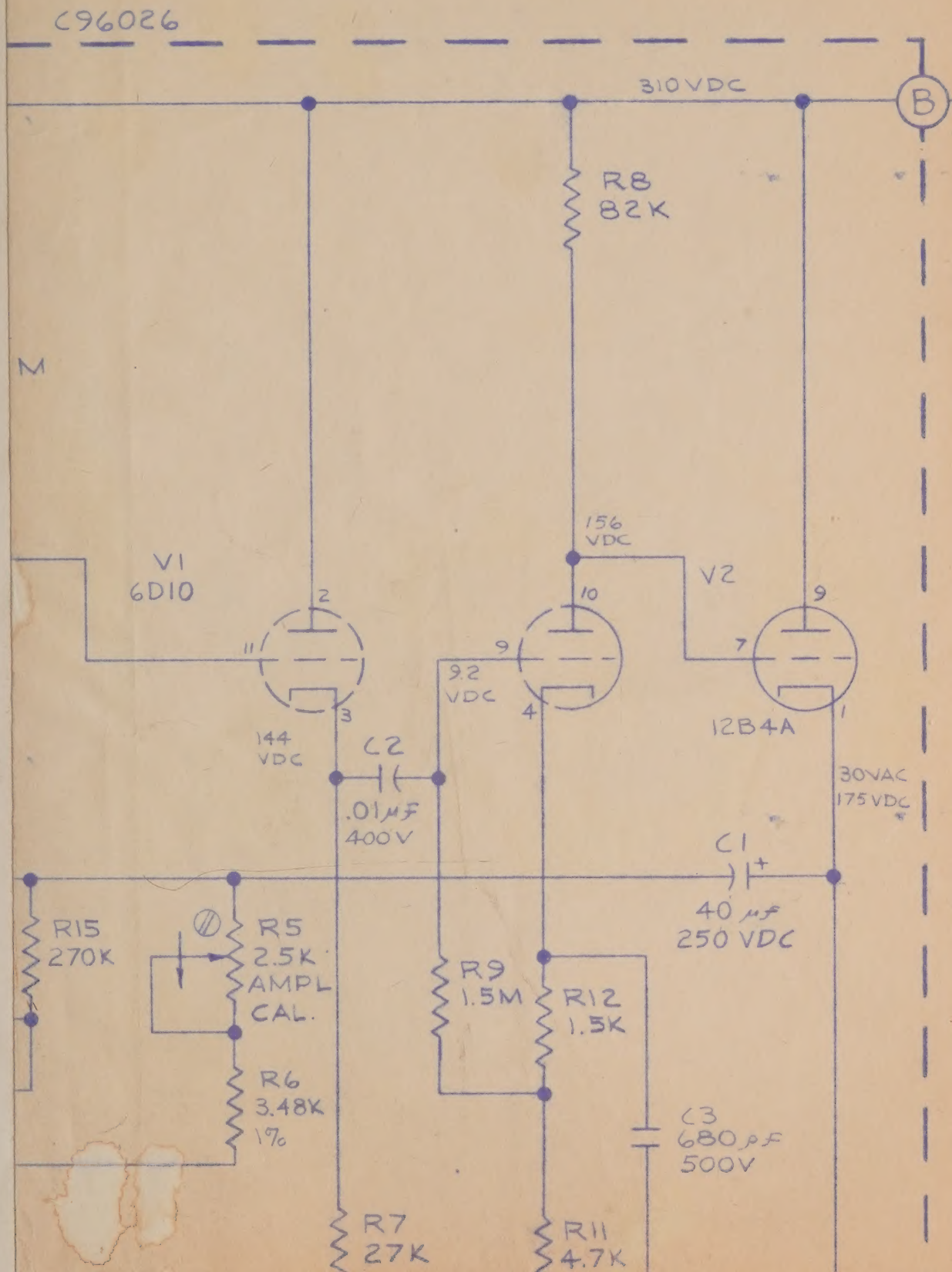
DRAWN — DATE 7/19/65
CHECKED — DATE 7/23/65
APPROVED — 7/23/65

elin DIVISION
INTERNATIONAL ELECTRONIC RESEARCH CORPORATION BURBANK, CALIF.
a subsidiary of Dynamics Corporation of America

TITLE
SCHEMATIC
ADO-102

CODE IDENT NO. 12897 | DWG SIZE D | DWG NO. 77172 E

SCALE | SHEET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B
R8
82K
M
156
VDC
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6D10
V2
2
10
9
11
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VDC
4
3
1
144
VDC
12B4A
C2
.01μf
400V
30VAC
175VDC
C1
40 μf
250 VDC
R15
270K
R5
2.5K
AMPL
CAL.
R9
1.5M
R12
1.5K
R6
3.48K
1%
C3
680 pf
500V
R7
27K
R11
4.7K

MP MASTER
MA28054